

REMARKS

Applicants have carefully considered the February 16, 2010 Office Action, and the comments that follow are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance. Claims 1-32 are pending in this application. Entry of the present response is respectfully solicited. It is believed that this response places this case in condition for allowance. Hence, prompt favorable reconsideration of this case is solicited.

Claims 1-32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukaya et al. (JP No. 2001-353603, hereinafter “Fukaya”) in view of Hirano et al. (U.S. Pat. No. 6,066,399, hereinafter “Hirano”) and further in view of Sheeja et al., Tribological Properties and Adhesive Strength of DLC Coatings Prepared Under Different Substrate Bias Voltages, Wear 249 (2001), pg. 433-439 (hereinafter “Sheeja”), as evidenced by Ohring, Material Science of Thin Films, Deposition and Structure, 2nd ed. 2004, hereinafter “Ohring”). Applicants respectfully traverse.

Stress distribution in the present application is attained in a single layer having a single chemical composition. In addition, stress distribution in Fukaya is also attained in a single layer having a single chemical composition. In contrast, stress distribution in Hirano correlates with a change in a composition, that is, a change in a ratio between sp^2 and sp^3 . In other words, according to Hirano, using hard and high-crystalline sp^3 and soft, smooth and low-crystalline sp^2 , a ratio therebetween is differed at the surface and the inside of the coating, which corresponds to a concept of what is known in the art as “functionally graded material” (FGM). Stress distribution in Fukaya is attained in a single layer having a single chemical composition, which does not correspond to FGM. Therefore, it would not be easy even for a person skilled in the art

to incorporate Hirano's stress distribution attained by change in the composition in Fukaya's stress distribution without a change in the composition.

The Examiner has combined Fukaya with Hirano simply because they both relate to a hard coating. On the other hand, the references are completely different from each other in terms of applications. Fukaya is directed to cutting of a metal material, whereas Hirano is directed to functional thin films for electric devices, protective coating on sliding parts for compressors and blades for electric shavers. See column 1, lines 12 to 21. Applicants respectfully submit that the present claimed subject matter as a whole could not be derived from a combination of Fukaya with Hirano, for the following reasons.

Independent claim 1 describes:

A surface-coated cutting tool, comprising:

a base material; and

a coated film formed on said base material; wherein

said coated film serves as an outermost layer on said base material and has compressive stress,

said compressive stress is varied so as to have strength distribution in a direction of thickness of said coated film, and

said strength distribution is characterized in that the compressive stress at a surface of said coated film continuously decreases from said surface of said coated film toward a first intermediate point located between said surface of said coated film and a bottom surface of said coated film and the compressive stress attains a relative minimum point at said first intermediate point.

The present claimed subject matter is characterized in that strength distribution of compressive stress has a "relative minimum point" in the coating having a single layer with a single chemical composition, so that an excellent effect of both high toughness and high wear resistance of a cutting tool is obtained. In contrast, Fukaya fails to suggest a "relative minimum point" in strength distribution of compressive stress, which is admitted in the Office Action. Though Hirano describes a combination of two or more layers, Hirano fails to suggest a "relative

minimum point" in strength distribution of compressive stress in a coating formed only of a single layer. As conceded in the Office Action, Hirano merely discloses a "relative maximum point" in strength distribution of compressive stress, which represents compressive stress distribution opposite to that in the present claimed subject matter. Therefore, absent the present application as a template, it would not have been obvious to derive the feature of the present subject matter of a "relative minimum point" in strength distribution of compressive stress in a coating formed of a single layer having a single chemical composition, in view of the combination of Fukaya with Hirano. The requisite motivation to support the ultimate legal conclusion of obviousness under 35 U.S.C. § 103 is not an abstract concept, but stems from the applied prior art as a whole and realistically impels one having ordinary skill in the art to modify a specific reference in a specific manner to arrive at a specifically claimed invention. *In re Deuel*, 51 F.3d 1552, 34 USPQ2d 1210 (Fed. Cir. 1995); *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989).

Therefore, in view of the arguments presented above, the present claimed subject matter is not rendered obvious by the Examiner's proposed combination of references. Even if the applied references are combined as suggested by the Examiner, the claimed subject matter as a whole would not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). Further, if any independent claim is non-obvious under 35 U.S.C. § 103(a), then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

It is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an

Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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